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AUTHOR Hurley, Marlene M.
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ABSTRACT

The purpose of this study was to investigate the relationships between age, college major, and the perceived library research attitudes of undergraduates. Subjects were students enrolled in a freshman level library research course at the State University of New York (SUNY) at Plattsburgh. Surveys were administered to 703 students in the fall and spring of 1994-95. The attitude variables examined were: persistence (ability to complete research); attentiveness (ability to pay attention to research details); evaluativeness (ability to be skeptical of information sources and to evaluate sources); patience (ability to devote time and labor to research); and topic interest (possessing a preference for topics of personal interest). The independent variables in this study were: college major (science, business, education, social science, humanities, and nursing and allied health), and age (under 26, or over 25). Multivariate analysis of variance was used to determine a significant difference by age on the attitude construct. Results indicate that no significant interaction exists between age and college major on library research attitude. Age, however, was found to be significantly related to library research attitude. Three tables show the intercorrelation between aspects of attitude; multivariate analysis of variance for library research attitude; and library research attitude: agreement by age. (Contains 11 references.) (AEF)

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THE LIBRARY RESEARCH ATTITUDES OF UNDERGRADUATES: DEVELOPMENT OF A FOUNDATION FOR FUTURE STUDIES

By

Marlene M. Hurley, Ph.D. Research Assistant[1]
University at Albany,
State University of New York

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1. Data for this study was collected while the author was employed at Feinberg Library, State University of New York at Plattsburgh.

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Marlene M. Hurley
University at Albany, State University of New York

Undergraduate library research students were surveyed to obtain their self-perceived attitudes toward library research, which were examined in relationship to their college major and their age (traditional or non-traditional students). Multivariate analysis of variance was used to determine a significant difference by age on the attitude construct, but no significant differences were found by college major. More importantly, a model for student attitude research in libraries was developed and the attitude construct used in the study was validated.

Introduction

The ability to do library research, frequently called "information literacy," has been defined as the "ability to effectively access and evaluate information for a given need" (Breivik, 1985, p. 723). Although this definition is available, the characteristics necessary to perform library research have not been well-studied. Patricia Breivik, a long-time information literacy advocate, has denoted researcher characteristics as: 1) an integrated set of skills (research strategy and evaluation) and knowledge (tools and resources), 2) developed through acquisition of attitudes (persistence, attention to detail, caution in accepting the printed word and single sources), 3) time and labor intensive, 4) need-driven, and 5) distinct from but relevant to literacy and computer literacy (Breivik, 1985).

Library research requires abilities from all three learning domains: cognitive, affective, and sensorimotor. The cognitive and the sensorimotor aspects of library research have been heavily studied in the library literature through tests of library skills and knowledge. The affective domain has been studied little in library literature, although it is well-published in the psychological and educational literatures; in fact, it has been called "the forgotten dimension" of library instruction (Mellon, 1988). This study examines the variable of attitude through an adaptation of the affective aspects of Breivik's researcher characteristics definition.

Problem Statement

The purpose of this study was initially to investigate the relationships between

age, college major, and the perceived library research attitudes of undergraduates (using an attitude construct established by the researcher). However, the lack of existing research in the realm of student attitudes toward library research, created the additional need for the study to also find a model for library attitude research on students. Therefore, the purpose of the study became dual: 1) To find a model to validate the use of the new attitude construct; 2) To investigate the relationships between age, college major, and the new attitude construct.

The multivariate, dependent variable used in this study was library research attitudes (as adapted from Breivik's definition and from the literature): persistence, attention to detail (attentiveness), patience, evaluativeness, and preference for topics of personal interest (topic interest). The two independent variables of age and college major were examined. Age was defined as traditional students (under 26) or non-traditional students (over 25). College majors were categorized into one of six groups: science (including all the sciences, mathematics, computer science, and engineering); social science (including all the social sciences except education and business); education; business; humanities; and, nursing & allied health.

Literature Review

Derived from "aptus" (Latin), attitude means "fitness" or "adaptedness" and has often referred to physical readiness; but, like its sister term, aptitude (also derived from "aptus"), is more often today used for mental readiness (Shrigley, Koballa & Simpson, 1988). Attitude research in this century is based upon the ground-breaking work with Polish immigrants of Thomas & Znaniecki in 1918, and the psychometric measurement instrument of Thurstone in 1928. Though much of the attitude research has centered around its relationship to behavior, the more recent research recognizes that attitude and behavior are not always related--thereby giving attitude its own position in the psychological literature (Shrigley, Koballa & Simpson, 1988). In spite of the plethora of publications on attitude in other domains, few attitude studies relating to undergraduate library research can be

found in the literature. However, several models upon which to develop a study of library research attitudes exist within the library literature.

The opposing dynamics of George Zipf's principle of least effort and Abraham Maslow's principle of self-actualization were discussed by Schwartz (1992) in relation to the quality of library research efforts. He surmised that most of these efforts fall in the middle of the two extremes, but suggested a model that begins with a "strong curiosity" about an area of inquiry and builds on a sense of discovery and surprise. Although Schwartz discusses library research behavior, he positions attitude (in the form of curiosity) as the driving force for positive research behavior.

A two-year study of undergraduate journal entries regarding their feelings while doing library research established the existence of "library anxiety' (Mellon, 1988). Relatedly, a model of the library research process was established by Carol Kuhlthau (1988) as consisting of six stages: task initiation, topic selection, prefocus exploration, focus formulation, information collection, and search closure. While feelings of anxiety and confusion pervade the beginning of the process, the formulation of a focus is the turning point for students. New feelings of confidence and a sense of direction replace the anxiety and confusion. Kuhlthau's model shows an increase in interest (an important aspect of attitude) as the search gains focus.

A taxonomy of library skills spanning affective, cognitive and sensorimotor domains was constructed by Jakobovits & Nahl-Jakobovits (1990) as a process for developing affective abilities for competently using libraries on three levels (p. 449): 1) Orienting to the library; 2) Interacting with the library; 3) Internalizing the library. These levels can be applied to the attitude construct under consideration in this study directly through the five sub-constructs: Level 1 is described as "Demonstrating willingness to practice library tasks" (the sub-construct of patience) "and maintaining selective attention" (the sub-construct of attentiveness); Level 2 is "Demonstrating continuous striving" (the sub-construct of persistence) "and value preferences" (the sub-construct of topic preference or interest) "favorable to the

library and its system"; and, Level 3 is "Demonstrating support for the library perspective on society and self" (the sub-construct of evaluativeness). The Jakobovits study provides the research support needed for the library research attitude construct used in the current study.

College Major

Over the years, various college majors have risen and fallen in popularity. A liberal education used to be highly valued; however, today's undergraduates are most often opting for areas of business (Christensen, 1994). In the area of intelligence scores, Christensen lists the sciences at the top, followed by literature and the social sciences, with applied fields such as agriculture, business, and education at the bottom. Major discipline areas (science, social science, and humanities) and their research productivity were compared in a study by Wanner, Lewis & Gregorio (1981). Results showed that greater productivity in the sciences was more an outcome of the "way in which the academic characteristics of natural scientists are transformed into scholarly output rather than their superior ranking on those characteristics" (p. 251).

College major has also been shown to be an important element of student characteristics and attitudes. It has been suggested that both technical aptitudes and personality characteristics lead to a choice of academic discipline and to information retrieval aptitude (Borgman, 1989). Borgman found that both technical aptitudes and personality characteristics were related to major; however, while she also found technical aptitudes to be an important predictor of information retrieval performance, she found no strong links between personality characteristics and information retrieval aptitude.

Age

Degree of certainty about college major has been shown to be positively related to continued retention in college (Tharp, 1993), with undecided students having a prevalence for dropout. Tharp further reported that age interacts with a student's choice of major, with non-traditional students (over 25) generally opting for the more

applied majors and having a higher dropout rate than traditional students. While dropout rate cannot be directly linked to library research attitude, they do both possess the common factor of "persistence." Traditional students (18-24) were compared to nontraditional students (over 24) in a study of library-related needs and behaviors (Hammond, 1994) and no differences between the two groups were found.

Research Questions

The library research attitudes construct has been shown to consist of persistence, attention to detail (attentiveness), skepticism in accepting new information without evaluating it (evaluativeness), patience, and preference to doing research on topics of personal interest (topic interest). It has been validated in the literature through a pre-existing, compatible model. This study now asks the research question: Will there be differences in library research attitudes based upon college major and/or age?

Methodology

Subjects

The population selected for this study consisted of students enrolled in Library Research 101 (a required, general education course for the Bachelor's degree) during the Fall of 1994 and the Spring of 1995 at the State University of New York (SUNY) at Plattsburgh. SUNY-Plattsburgh had a 1994-95 enrollment of approximately 5,275 matriculated students.

Although intended as a freshman level course, Library Research 101 is not taken by many students until their junior or senior year. The program consists of 24 sections each fall and spring and an additional six during the summer, with separate general research sections and subject research sections offered. The fall survey was administered during the week of October 17 to all attending students in 22 of the 24 sections (a total of 488 students). Two sections were unable to participate during that week. The spring survey was administered to students attending the subject sections of Education, Nursing & Allied Health, and Science (a total of 215 students)

during the first class session. The total number of students receiving the survey during the 1994-95 school year was 703.

Instrumentation

The dependent variable under consideration in this study was undergraduate library research attitudes. The attitude variables within this construct were: persistence (ability to complete research), attentiveness (ability to pay attention to research details), evaluativeness (ability to be skeptical of information sources and to evaluate sources), patience (ability to devote time and labor to research), and topic interest (possessing a preference for topics of personal interest). These sub-constructs were measured using four-point, Likert-type questions within a self-reporting survey instrument designed by the researcher.

Reliability of the test items was established using Cronbach's alpha to obtain a correlation coefficient of r = .70. The instrument was pilot-tested by a small group of undergraduates previous to the fall, 1994 administration with positive outcomes for readability, logic, and ease of answering. Instrument validity was established through the selection of criterion variables from the literature review process.

Research Design

Figure 1 presents the causal-comparative research design that was used in this study of library research attitudes of undergraduate college students. The independent variables are college major (science, business, education, social science, humanities, and nursing & allied health), and age (under 26, or over 25). Independent variables were reported by the students on the researcher-designed, self-report instrument. The dependent construct is library research attitudes (persistence, attentiveness, evaluativeness, patience and topic interest).

The sample consisted of students attending library research classes during a certain week of each semester. They were assigned to groups based upon their self-reported college major and age. Since the sample represented 84% of the students

enrolled in library research classes during the 1994-1995 school year and approximately 11% of the total school population, it would appear to be representative of the college. Based upon the literature, the affective domain in student library research has not been strongly considered; in fact, this particular construct of library research attitudes appears to be a new area of study that could provide future explanations for such observed phenomena as "library" and "computer" anxieties.

Figure 1

Library Research Attitudes by Age & College Major

	Age	
Major	**Under 26**	**Over 25**
Science	Attitudes	Attitudes
Social Science	Attitudes	Attitudes
Humanities	Attitudes	Attitudes
Business	Attitudes	Attitudes
Education	Attitudes	Attitudes
Nursing/All H.	Attitudes	Attitudes

Procedure

During the fall of 1994, 488 students were given the researcher-developed survey during their library research classes the week of October 17. Surveys were returned to one of two "drop" boxes in the library upon their completion; 420 surveys were returned for a fall return rate of 86%. The spring, 1995 administration was to 215 students during the first week of classes in January. Instructors for these classes collected 172 completed surveys, for a spring return rate of 80%. Overall, 83.8% of the students returned the surveys. The collected surveys were appraised for completeness and it was determined that a total of five were not usable. The data from all 587 usable surveys were placed in a data file for use with the SPSS (Statistical Package for the Social Sciences) program.

Results

A two-factor multivariate analysis was used to analyze the data. The two

fixed, categorical, independent variables were age with two levels (under 26 and over 25) and college major with six levels (science, social science, business, humanities, education, and nursing & allied health). The dependent, multivariate construct was undergraduate attitude towards library research, composed of five aspects of attitude (persistence, attentiveness, evaluativeness, patience and interest). Results of the analyses are summarized in Tables 1 to 3.

Table 1

Intercorrelation Between Aspects of Attitude

Library Research Attitude	1	2	3	4	5
1. Persistence	—				
2. Attentiveness	.56	—			
3. Evaluativeness	.20	.24	—		
4. Patience	.41	.43	.17	—	
5. Interest	.35	.32	.16	.11	---

Examination of the error correlation matrix (Table 1) indicates that the theoretical construct of attitude towards library research is supported empirically for undergraduates. The dependent variables are interrelated (Bartlett's test of sphericity = 502.50; df = 10; $p < .01$) and support the use of multivariate statistics.

MANOVA results indicate that no significant interaction exists between age and college major on library research attitude. Age, however, was found to be significantly related to library research attitude ($F = 2.57$; df = 5, 570; $p < .05$). Examination of the relative size of the univariate F's indicates that "attentiveness" and "interest" (see Table 2) are the strongest contributors to the significant effect of age. Comparison of means between age and attitude (Table 3) shows non-traditional students (μ=2.97) to be more attentive to details than traditional students (μ=2.76), but also shows that they prefer researching a topic of personal interest (μ=3.15) less than traditional students (μ=3.40). Strength of association indicates that 2% of the variability in attitude is related to age.

Table 2

Multivariate Analysis of Variance for Library Research Attitude

Source	df	F Multivariate	F Univariate	S/A
Attitude	5/ 570	2.57*	–	2%
2. Attentiveness	1/ 574	–	3.95*	
5. Interest	1/ 574	–	4.60*	

* $p < .05$

Table 3

Library Research Attitude: Agreement by Age

Library Research Attitude	Under 26 M	Under 26 SD	Under 26 N	Over 25 M	Over 25 SD	Over 25 N
1. I am persistent.	2.86	.75	522	2.92	.72	65
2. I pay attention to detail.	2.78	.70	522	2.97	.65	65
3. I am skeptical in accepting information found without evaluating it.	2.58	.77	522	2.62	.61	65
4. I have patience with the amount of time and work involved.	2.54	.81	522	2.65	.69	65
5. I prefer to research topics of personal interest to me.	3.40	.72	522	3.15	.70	65

Discussion

This study has shown that differences may exist between traditional and non-traditional students in the library research setting. However, while the groups in this study were well-matched in size by college major, they were not well-matched in size by age due to using established classes--where traditional students outnumber non-traditional students eight to one. This may also account for the low strength of association (2%) obtained. In order to verify differences between traditional and non-traditional students on library research attitudes, future studies should be performed with approximately equal numbers of students in each group.

Although discretion should be used in generalizing these results to another setting, an awareness of the possibility of differences in attitudes between traditional and non-traditional students would be indicated. Non-traditional students may pay less attention to detail than traditional students; they may also be less interested in a

topic--or less able to decide on a topic--than traditional students.

Although often an important factor in studies of library skills, college major turned out to not be a significant factor in this study. Librarians, both in the literature and in the real world, acknowledge the existence of different information-seeking habits, needs, and abilities from the various disciplines. This study, however, indicates that there is little difference between undergraduate students from different majors on the affective domain of attitude; differences that have been observed and/or studied may emanate from the cognitive or sensorimotor domains. Additional research is needed on library research attitudes and college major to verify these findings.

In fact, additional research on library research attitudes, using either the variables from this study or other variables, is generally needed. A search for published attitude studies relating to libraries will show the existing studies to be library- or librarian-centered rather than student-centered; that is, from the library or librarian point of view. It is not understood by this researcher why attitude research from the student viewpoint has not become a major area of library research, since it is so predominate in the disciplines of education and psychology.

The most important aspects of this study are the discovery of models for future library research attitude studies and the validation of the attitude aspect of Breivik's definition of information literacy. The attitude construct of persistence, attentiveness, evaluativeness, patience, and interest has been shown to be a multivariate construct that can be used for measurement of student attitudes toward library research. Perhaps this small beginning will help to bring attitude research on students into the research realm of the library, a place where attitudes are known to reside.

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